The strangest freaks in all of Nature's family are the insects. Last summer we saw myriads of moths, butterflies, beetles, gnats and countless other insects. Today as I walked through the woods the only insect I saw was a mosquito driven from its winter home in a hollow tree and walking stiffly about on the snow. Some of the others which last summer filled night and day with their incessant humming are also hidden away in hollow logs, under bark, in the caves, among the dead leaves—anywhere that will furnish sufficient room for a hiding place. They may be frozen stiff now but when the spring sun sends its reviving warmth into their retreats, life will flow through their bodies and they will be active once more. However, you might examine the whole world with a microscope and you would not find a single animal resembling some of those which were so abundant last summer. Has the whole race been killed? And is it to be numbered with those that have disappeared in the long gone geological ages? Wait and see. Nature is not so careless with her children. If the adult members of a species can not stand the rigors of winter, then other means for preserving the race must be provided. Somewhere, hidden away safely in a protected nook are some tiny eggs, the sole representatives of their species and when warm weather comes again these eggs will hatch and the bugs and butterflies, the caterpillars and moths, and the gnats and wasps will be as abundant as in former years.

CRITICAL NOTES ON NEW AND OLD GENERA OF PLANTS.—I.

BY J. A. NIEUWLAND.

GONOPYORUM A HOMONYM.

The name *Gonopyrum* F. and M. (1840)[1] is a homonym as there was an older *Gonopyros* Raf.,[2] (1828). The latter name differs from the other only in gender form of the word, and therefore reduces the other to synonymy according to the code rules.

1 Fischer and Meyer ex C. A. Meyer in Mem. Acad. Petersb. Ser. VI., VI., p. 144, (1840).

2 Rafinesque C. S. Med. Fl. I., p. 155, (1828).

3 Michaux, A., Fl. Bor. Am. II., p. 240, (1803).

Moreover, the group of plants to which the name *Gonopyrum* F. and M. was given is not simply a synonym to the *Polygonella* Michx.[3] but a real segregate of distinct plants. The genus differs from *Polygonella* by notable characters such as perfect flowers and lateral embryo, shape of calyx, whereas those of the latter are polygamo-dioicous and have an axillary embryo. The flowers are very different in the two groups. The *Gonopyros* Raf. is a proposed segregated genus of *Diospyros* Linn. To replace the invalidated *Gonopyrum* F. and M. we suggest the name *Psammogonum*.

Psammogonum Nwd. nom. nov.
Gonopyrum F. and M. 1840 not *Gonopyros* Raf. 1828.

Psammogonum americanum (F. and M.) Nwd.
Gonopyrum americanum F. and M. l. c.
Polygonella ericoides Engelm. and Gray. Bost. Jr. Nat. Hist. V, p. 230, (1845).
Polygonella americana Small, Mem. Torr. Bot. Cl. V. p. 141, (1894).

Psammogonum articulatum (Linn.) Nwd.
Gonopynum articulatum (Linn.) F. and M. l. c.
Polygonella articulata (Linn.) Meisn. Gen. 2, p. 228, (1836–42).
Polygonum articulatum Linn., Sp. Pl. p. 363, (1753).

Delphinium.

The type of the genus *Delphinium*, whether we refer the genus to Linnaeus, as many now do, or more correctly to the ancients, is not *Delphinium Consolida* Linn. as Dr. Britton would intimate but rather *Delphinium peregrinum* Linn. This plant and its nearest allies of the same group *D. Consolida*, *D. Ajacis*[1] Linn. differ from the other members of the aggregation now commonly called by the name *Delphinium*, so markedly that we can scarcely restrain our wonder that systematists should call this a genus. *D. Consolida* and its allies have but one follicle in fruit, the others have three; it has, moreover, the petals united into two sets and with its ally, is an annual; our native plants have separate petals and are perennials, whereas the petals of *D. Consolida* and *D. Ajacis* are very conspicuously united. One might as reasonably have included species of *Aconitum* in this miscellaneous modern *Del-*

1 Gray, S. F. Nat. An. Br. Pl. II., p. 711, (1821).

phinium as put together such plants as are here commented on. There are other differences almost as important, and we have not the slightest hesitancy of admitting these, as generically characteristic, and proposing that such heterogenous mixtures of widely different types be separated.

A name of the group of perennials with three-follicled fruit given by Spach, is *Delphinastrum*,[1] not a desirable one as the ending *astrum* indicates the wild condition of a plant, and is built on a previously existing plant name. *Staphisagria* Spach[2] as also his *Phledinium*[3] are perhaps sufficiently different from either of the above to merit recognition as genera. *Delphidium*[4] Raf., another name was proposed earlier than any by Rafinesque, but was unfortunately made without description and even designation of type and is scarcely more than a *nomen nudum*. Some of the transposed plants under *Delphinastrum* Spach are:

DELPHINASTRUM Spach l. c.
Type *Delphinium grandiflorum* Linn.

Delphinastrum exaltatum (Ait.)
Delphinium exaltum Ait. Hort. Kew. 2. p. 244, (1789).

Delphinastrum Treleasei (Bush.)
Delphinium Treleasei Bush; Davis, Minn. Bot. Stud, 2, p. 444, (1900).

Delphinastrum Nelsoni (Greene).
Delphinium Nelsoni Greene, Pitt. 3, p. 92, (1896).

Delphinastrum carolinianum (Walt).
Delphinium carolinianum Walt. Fl. Car. p. 155, (1788).

Delphinastrum virescens (Nutt.).
Delphinium virescens Nutt. Gen. 2. p. 14, (1818).

Delphinastrum tricorne (Michx.).
Delphinium tricorne Michx. Fl. Bot. Am. I., p. 318, (1893).

Other plants to be transferred are:

Delphinastrum Menziesii (D. C.), *leucophaeum* (Greene), *distichum* (Geyer), *Andersoni* (Gray), *nuttallianum* (Pritz.), *glaucum* (Watson), *occidentale* (Watson), *trollifolium* (Gray), *nudicaule*

1 Spach, E., Hist. Nat. Veg. VII., p. 336, (1839).
2 Spach, L. C., p. 347.
3 Spach l. c. p., 351.
4 Rafinesque C. S. Am. Month. Mag. p. 356, (1811).

(T. and G.), *vimineum* (D. Don.), *urceolatum* (Jacg.), etc., etc. *Delphinia* of authors quoted.

DELPHINIUM (Dioscorides) Linn. Sp. Pl. p. 536, (1753).
Phledinium Spach. l. c. p. 351.
Delphinium peregrinum Linn. l. c. p. 531.[2]
Phledinium peregrinum (Linn.) Spach. l. c.
Type of the genus *Delphinum* stricto (sensu.)

CONSOLIDA (Brunfels) S. F. Gray,[3] l. c.
Delphinium Spach. l. c. stricto sensu, not of Linn.,f or only in part.

Consolida regalis (Brunfels) S. F. Gray, l. c.
Delphinium Consolida Linn., Sp. Pl. p. 530, (1753). Type of the genus *Consolida.*

Consolida Ajacis (Linn.).
Delphinium Ajacis Linn. l. c. p. 531.
Consolida Ajacei Schur., in Verh. Siebenb. Ver. Naturw. IV., p. 47, (1853).

ANEMONANTHAEA S. F. Gray.

The group of plants now usually included in the genus *Anemone*, but not having hairy achenes, typified by *Anemone nemorosa* Linn., were segregated by S. F. Gray as the genus

1 The name *Phtirium* Raf. is an absolute synonym of *Delphinium*, Latin name for the Dolphin.

2 The plant was first named by Dioscorides, a Greek, who lived in Italy in the first century. *D. Consolida* and *D. Ajacis* the plants made typical of *Delphinium* by Dr. Britton grow in Europe, Orient, and northern Asia. Linnaeus never designated types and it is worse than useless to accept the first named species of his genera as type of the genus without consulting the other authors from whom Linnaeus took the names he used. Types of his genera can only be determined in many cases by a careful study of the older authors. See Britton, N. L., Ill. Fl. N. Am. II. p. 93, (1913). The native *Delphinum* of Italy is *D. peregrinum* and is more probably the plant of Dioscorides, though *D. Consolida* may have been known to him as the second species mentioned in his work. See Daubeny C., Lectures on Roman Husbandry, (Oxford), p. 236, (1857) also Fée, A. L. A. Flore de Théocrite, p. 102, (1832), also his Flore de Vergile, p. 67, (1822). Also Fraas, Flora Classica, Sibthorp in his Flora Graeca, I. p. 370-371 says that the *Delphinium* of Dioscorides is *Delphinium peregrinum* Linn. and that the second species mentioned in his Materia Medica or the Δελφίνιον ἕτερον Diosc is *Delphinium Consolida* Linn.

3 S. F. Gray l. c.

Anemonathaea. The group doubtless deserves recognition for reasons as valid as some of the segregates lately made. Because of the resemblance in fruit these plants were by pre-Linnaean authors first referred to *Ranunculus*[1] rather than to *Anemone* proper. Following are some of the eastern American allies as also one of the Pacific coast:

ANEMONANTHAEA (DC.) S. F. Gray, Nat. Arr. Br. Pl. II, p. 724, (1822).

Anemanthus Fourr. Ann. Soc. Linn. Lyon. N. S., XVI., p. 323, (1868).

Anemonanthaea trifolia (Linn.).
Anemone trifolia Linn., Sp. Pl. p. 540, (1753).

Anemonanthaea quinquefolia (Linn.).
Anemonanthaea quinquefolia Linn. l. c. p. 541.

CORNIVEUM.

The plant represented from the northwestern United States as *Dicentra uniflora* Kellog, or *Bicuculla uniflora*, (Kellog) Howell has floral structure and other very important characters quite different from our eastern *Bicuculla* or *Dicentra Cucullaria*, and *canadensis*. Though externally the flowers may appear somewhat like these, more careful examination shows them to be at least as different as the so-called Californian *Bicucullas* such as *B. chrysantha* (Blanche) and *B. ochroleuca* (Engelm), and *Adlumia* itself, which have been segregated into new genera. The vegetative habit of the plant too is noticebly different.

The sepals of *Bicuculla uniflora* are quite large, nearly if not half as long as the corolla. The outer petals saccate at the base are reflexed in anthesis below the middle by a long carinate tip. The inner petals, not crested are different in shape from any corresponding parts in any of this group of plants, and more notably modified than those of the other well accepted genera of *Fumariaceae*. They are arrow or halbred-shaped with a long narrow claw extending nearly to the middle and at least beyond one-third their length. Their apex is somewhat spoon-shaped but crestless. The stamens are somewhat united under the inner petals, the two lateral apparently the upper one-third of their length in pairs, the other two are long recurved into the saccate

1 See Parkinson, J. Paradisus Terrestris, (1623).

parts of the outer petals. The stigma is apparently 2 cleft, each part again slightly divided into two small lobes. The pistil is ovoid and bears the remainder of the withered persistent corolla as in the yellow Californian allies, and in *Adlumia*, and this is a notable character in these segregated recognized genera.

As to the vegetable characters of habit, the plant bears at its base which is buried deep in the ground a cluster of fusiform tuberous roots above which are found in membranous leaf-scales which cormlets or bulblets. The plant therefore appears to use the latter only for propagation and the tuberous roots for food storage. The scape and leaf petioles are buried under ground ½–¾ of their length and the subterranean parts covered with outgrowths like root-hairs which seem to serve the function of absorbing moisture like roots. This last character is notable in a plant which is not only essentially glabrous itself, but shares that character with the whole group.

Corniveum nov. gen.

Planta glabra vel glauca perennis acaulis e radicibus fusiformibus tuberosis oriens, foliis ternatis dissectis, petiolis et scapo subteranneis, ½ vel ⅔ longitudinis, et sub solo pubescentibus. Fructus ovoidus cum stylo filiformi et stigmate diviso, corollam marcescentem ferente; staminibus sex, binis lateralibus sub aequilongis, ⅓ longitundinis supra unitis et duobus in calcar retro projectis vel incurvatis, omnibus plus minusve ad summutatem unitis; petalis exterioribus semicordatis apice longe recurvatis, petalis interioribus hastatis unguiculatis, minime cristatis, apice rotundato (unguis fere dimidio totius partis longus), scapo bracteato, flore nutante sed florescente erecto, 1.3–2.5 cm. longo.

Corniveum uniflorum (Kellog.) Nwd.
Dicentra uniflora Kellog.[1]
Cicuculla uniflora (Kellog) Howell.[2]

Despeleza nov. gen.

The type species of the genus *Lespedeza* Michx. is *L. virginica*. There is another group of plants which has hitherto been associated with this genus usually, but which has characters as a group warranting separation therefrom. The absence or

1 Kellog, in Proc. Calif. Acad. IV., p. 141, (1871).
2 Dicentra uniflora, Kell. Proc. Cal. Acad. Sci. IV., p. 141, (1903).

presence of cleistogamous flowers has apparently become recognized as a character sufficient to merit generic standing. Besides this the plants of which *Lespedeza hirta* (Linn.) Hornem. may be selected as typical, have in common other important characters. Their flowers unlike those of *Lespedeza* proper, are whitish or yellowish, and usually characteristically aggregated in only terminal or subterminal spike-like racemes, and the calyx segments exceed or include the fruit, whereas the typical plants beside having cleistogamous axillary and loosely aggregated purplish flowers, have their fruit longer than the calyx segments. We may designate the group devoid of cleistogamous flowers as a new genus **Despeleza.**

Crocanthemum Spach, in the *Cistaceae* recognized of late as a good genus can be said to have scarcely much else but the presence of cleistogamous flowers to validate its generic standing as separate from *Helianthemum* and especially from *Halimium.*

DESPELEZA nov. gen.

Lespedeza Michx. Fl. Bor. Am. II. p. 71, (1803), segregate.

Plantae perennes, stricte erectae, plus minusve e basi ramosae, plerumque etiam infime suffruticosae, floribus, albis, albescentibus vel flavescentibus, calice fructum superante, floribus cleistogamis omnino absentibus (*i. e.* tantum petaliferis perfectos habentibus); floribus in inflorescentia terminali spicato-racemosa aggregatis.

Plants perennial, strictly erect, often more or less branched from the base, somewhat suffruticose below. Flowers whitish or yellowish; calyx segments surpassing the fruit: cleistogamous flowers absent, inflorescence spicate-racemose terminal or subterminal.

Despeleza hirta (Linn.) Nwd.

Lespedeza hirta (Linn.) Hornem. Hort. Harn. p. 699, (1807).

Hedysarum hirtum Linn., Sp. Pl. p. 748, (1753). Type.

Despeleza capitata (Michx.) Nwd.

Lespedeza capitata Michx. Fl. Bor. Am. II., p. 71, (1803).

Despeleza angustifola (Pursh) Nwd.

Lespedeza angustifolia (Pursh) Ell. Bot. S. C. and Ga. II., p. 206, (1824).

Lespedeza capitata var. *angustifolia* Pursh, Fl. Am. Sept. p. 480, (1814).

Despeleza leptostachya (Engelm.) Nwd.

Lespedeza leptostachya Engelm. A. Gray. Proc. Am. Acad. XI., p. 57, (1876).

HYPOGON Raf.

In proposing the name *Micheliella* Briquet,[5] the author must have overlooked the fact that just exactly eighty years before, Rafinesque had separated these plants as typical of his genus *Hypogon.*[6] *Micheliella* as a diminutive of a previously existing plant name is not a very desirable name at that, and its absence from our nomenclature by reduction to synonymy may be considered beneficial.

After examining carefully for possible homonymy, or synonymy in case of Rafinesque's name we can not find any reason whatever why *Hypogon* should not have been taken up lest it be that it was completely overlooked. This, however, is all the more inexcusable inasmuch as the Index Kewensis records *Hypogon* in two places, though the authors failed to notice one of the new combinations made by Rafinesque. Dr. Small[7] in both editions of his Flora of the Southeastern United States accepts *Micheliella* with the same species exactly as quoted by Briquet and by Rafinesque so long before under *Hypogon.*

In other places Rafinesque[8] calls attention to the first publication of his genus *Hypogon.* The exact quotations which are not too long may be here given.

"119. *Collinsonia verticillaris* Raf. Caule villoso, foliis subintegris, floribus tetrandris paniculatis verticillatis. Raf. *C. scabriuscula* Rob. p. 390. Grows near woods, stem scarcely two feet, flowers yellowish. The variety of *C. scabra* found by Mr. Lyons with four stamens and larger flowers. (See the Flora of Pursh) belongs perhaps to this species which together with *C. anisata* might properly form a subgenus (or a new genus) having four fertile stamina to which the name *Hypogon* might be given. (p. 41).

"5. Sp. 119. *Collinsonia verticillaris.* Its real name must be *Hypogon verticillatum* Raf. and the *C. amisata* must be *Hypogon*

5 Briquet in Engler and Prantl. Pflanzensyst. IV., III., A. p. 325, (1897).

6 Rafinesque, C. S. Flora Ludoviciana p. 41, (1817).

7 Small, J. K. Fl. S. E. U. S. p. ——, (1903 and 1913).

8 Rafinesque, C. S. Am. Monthly. Mag. p. 101, (June 1818). l. e. also Med. Fl. 2, p. 230, (1830). "*Collinsonia anisata* belongs to the gen *Hypogon* of the Florul Ludoviciana having 4 fertile stamens."

anisatum Raf. since the number of stamina is constant and generic in this tribe, else the genera *Salvia, Rosmarinus, Lycopus*, etc., ought not to exist! *Hypogon* means beard beneath." (p. 148).[1]

Another fact brought out by the above description is that Rafinesque's name *C. verticillaris* antedates Baldwin's *C. verticillatus*.[2] Following is the resumé of synonyms.

HYPOGON Raf. Fl. Lud. pp. 41 and 148, (1817).
Micheliella Briq. l. c. (1897).
Collinsonia Linn. seg.

Hypogon verticillare (Raf.) Nwd.
Collinsonia verticillaris Raf. Fl. Lud. p. 41, (1817) Nomen prius.
Collinsonia verticillata (Raf.) Baldwin.[2] l. c. (1818).
Hypogon verticillatum Raf. Fl. Lud. p. 148, (1817).
Micheliella verticillata (Baldw.) Brifi. l. c. *i. e. Micheliella verticillaris* (Raf.)

Hypogon anisatum (Sims) Raf. F. L. p. 148, (1817).
Micheliella anisata (Sims) Briq. l. c.
Collinsonia anisata Sims Bot. Mag. t. 1213.

POLYGALA Linn.

The aggregated group of plants called by Linnaeus *Polygala* contains a mixture of types so dissimilar from one another that such would not be allowed together in other genera of the plant kingdom. Floral distinctions in one family are often over lookeed which elsewhere were sufficient to constitute at least distinctions of generic importance elsewhere. Were the same standard of differentiation used in the *Polygalaceae* as prevails without objection or though of objection in the *Orchidaceae* what a difference there would be in the status of this so called genus. It would soon become a very much segregated one. In not a few of our floras and manuals the flowers are scarcely at all described.

If floral characters are constant characters and of sufficient importance to warrant generic distinctions in one group of plants it would seem illogical to neglect totally such characters in another group. It is on the basis of such notable distinctive floral marks

1 See also Rafinesque, C. S., Neogenyton. p. 2, (1825). Rafinesque, Flora Ludovic. p. 148, (1817).

2 Baldwin ex Elliott, Sketch, I., p. 36., (1818).

that we propose the following segregates from *Polygala*, some already made.

GALYPOLA nov. gen.

Planta subsimplex eglandulosa glauca erecta, foliis parvis, subulatis, remotis ,alternatis, cum ramis paucis erectis virgatis floribus subspicatis roseis vel purpureis aliquando subviridibus, calyce irregulari, alis lanceolatis vel oblanceolatis, obtusiusculis vel acutis, sepalo superiore ⅔-plo breviore quam alae ovato, lanceolato, acuto; binis inferioribus ½-plo minoribus quam alae, lanceolatis acuminatis subfalcatis omnibus plus minusve erectis vel etiam divaricatis. Carolla sympetala, tubula, supra carinata et apice cristata et basi fissa, ex qua parte ovarium etiam florescens se extrudit. Stamina 8, inaequalia, parva, superiora, corollae insita. Stylus barbatus apice supra glandem incurvatus.

Plant without glandular dots, annual, glaucous, erect, subsimple, not much branched, with spicately arranged flowers and small subulate alternate leaves. Flowers rose-colored or purple, or often somewhat greenish. Calyx very irregular, wings oblanceolate, obtuseish or acute, upper sepal about ⅓ as long as the wings, acute ovate lanceolate, the two lower similar less than ½ as long as the wings, lanceolate acuminate somewhat falcately curved outward. Corolla sympetalous parts unite into a long cleft tube about three times as long as the greenish white, more or less inconspicuous wings. Corolla expanded at the tip into a carinate unfolded crested tip with a number of protuberances (about 12) divaricately turned outward, some branched. Tube of the corolla cleft at its base on the upper side by the protruding ovary. Stamens 8 unequal, situated obliquely on the expanded portion of the corolla tube. Style long with its tip bearded and bent at right angles over the gland beneath it on the style. Ovary two-celled: caruncle of the hairy seed two-lobed crest like.

The very peculiar shape of the flowers of this plant with its peculiar habit of growth, bearded stigma, extended ovary, long tubed corolla, and short inconspicuous wings and sepals, combine with the other notable characters mentioned to make this plant totally different from the other members of this group. Unlike in most *Polygalae* the corolla is the most conspicuous parts of the flower and the wings of the calyx small and greenish. Though varying in many other respects the corolla in this plant most

closely resembles that of the plant called *Polygala paucifolia* Willd. The genus is, as far as I can find, to be considered as, monotypic.

GALYPOLA nov. gen.
Polygala Linn. Seg.

Galypola incarnata (Linn.) Nwd.
Polygala incarnata Linn. Sp. Pl. p. 701, (1753).

Other members of the Linnaean genus *Polygala* that may well be removed therefrom are the following:

ANTHALOGEA Rafinesque, New. Fl. Am. IV., p. 88, (1836).

The plant is biennial and beside the characters referred to by Rafinesque, produces regularly subterranean and often aerial cleistogamous flowers. Together with *Polygala paucifolia* Linn, it is the only other plant of the aggregate having apetalous or cleistogamous flowers.

Anthalogea polygama (Walt.) Nwd.
Anthalogea rubella Raf. l. c.
Polygala polygama Walt. Fl. Car. p. 179, (1788).

For the characters of the cleistogamous flowers see Shaw, C. H., Cont. Bot. Lab. Penn. Univ. II., 2, p. 173, (1901).

TRICHLISPERMA Raf.

The beautiful little plant with flowers most showy of all the group of *Polygala* has a number of notable distinctive characters that deserve consideration for generic standing. The plant was made by Rafinesque type of his genus *Trichlisperma*.[1] The crested elongated corolla recalls that of *Galypola*. The plant is perennial and produces cleistogamous flowers which were not unnoticed by Rafinesque though not so called by him, nor was he perhaps aware of their exact nature.[2] The habit too of the plant is quite different from any other *Polygala*. The peduncled flowers are different from those of either this or *Galypola*, the corolla resembling the latter somewhat but the wings those of *Polygala*. Stamens only six in two sets of three. Rafinesque mentions also differences in the seed. Rafinesque says that the roots contain oil of wintergreen.[3]

1 Rafinesque, C. S. Specch. 1, p. 117, (1814). (See also following note).
2 Rafinesque, C. S. Med. Fl. II., pp. 63–65, (1830).
3 Rafinesque, C. S. Med. Fl. I., p. 205, (1828).

TRICHLISPERMA Raf. Specch., I., p. 117, (1814).
Polygala Linn., segregate.

Trichlisperma paucifolia (Willd.) Nwd.
Trichlisperma grandiflora Raf. l. c.
Polygala paucifolia (Willd., Sp. Pl. 3. p. 380, (1800).
Polygala uniflora Michx., Fl. Bor. Am. 2, p. 53, (1893).

SENEGA Spach.

Polygala Senega Linn. has been separated as a genus and perhaps a good one by Spach. as *Senega officinalis* Spach.[1] The characters are not as notable as those of the plants already discussed.

ACER Linn.

The genus *Acer* has been left by phytographers even to the present day in nearly the same condition as treated by Linnaeus in 1753. Whether *Rulac* be segregated from it or not, it remains an aggregate containing plants with simple and compound leaves, plants that are dioecious and variously polygamous, flowers hypogynous and perigynous, flowers with or without petals and various kinds of perianth and difference in number of stamens, sepals separate or united. Some groups have intra-staminal, others extra-staminal disks. In fact, with *Rulac* removed from *Acer* the latter still presents anomalies greater than if left in because the segregation of the former only emphasizes the inconsistency of a procedure that disregards in this separation characters more important than those that warrant us from considering *Rulac* as distinct. All the above mentioned variations constant in the groups manifest themselves at once to the student that attempts to study the maples, and yet the aggregate genus is left in this condition without apparently the slightest misgivings on the part of modern botanists! Most diagnoses of the manuals, in fact, deftly gloss over the importance of the characters referred to by either scarcely referring to them or leaving the superficial student to deceive himself into believing they are variable characters.

About the only notable character that is made to hold this Linnaean *Acer* unsegregated is the similarity of the fruit in all the species. On the same principle of classification one would

1 Spach. E. Hist. Nat. Veg. Phan. 7, p. 129, (1839).

be obliged to consider nearly all the members of the orchid family as one genus! Such neglect of fully appreciating the value of other important floral characters leads us to separate at least the Sugar Maples from *Acer*. If the characters are constant there can hardly be any good excuse for having plants with apetalous flowers in the same genus with petal-bearing plants.

Saccharodendron (Raf.) Nwd.

Segregate of *Acer* Linn. Subgenus *Saccharodendron* Raf. New. Fl. N. Am. p. 47, (1836).

Arbores cum foliis 3-5 lobatis subtus saepius glaucescentibus et inflorescentiis terminalibus sessilibus umbellatis; floribus praecocibus andromonoicis vel androdioicis, staminibus, 3-8, in stamineis perigynis (vel hypogynis) calice sepalorum connatorum, petalis nullis. Fructus et alia fere omnia ut in *Acer*.

Trees with leaves 3-5 lobed often glaucous beneath and with terminal (or lateral) sessile umbellate inflorescences. Flowers precocious, plants andromonoicous (or androdioicous). Calyx with sepals united: petals none. Stamens 3-8 perigynous (or hypogynous) in the staminate flowers. Fruit and most other characters as in *Acer*.

Type *Acer Saccharum* Marsh.

Section 1 *Saccharina*.

Flowers appearing just a little before the leaves, stamens in the staminate flowers perigynous, flowers andro-monœcious inflorescence terminal.

Saccharodendron barbatum (Michx.) Nwd.

Acer Saccharum Marsh,[2] Arb. Amer. p. (1785).

Acer barbatum (Michx.) Fl. Bor. Amer. 2. p. 252, (1803).

Saccharodendron floridanum (Chapman) Nwd.

Acer floridanum (Chapman) Pax. Eugler's Jahrbuch VII., p. 243, (1886).

Saccharodendron leucoderme (Small) Nwd.

Acer leucoderme Small. Bull. Torr. Bot. Cl. XII., p. 367, (1895).

2. The name *Acer Saccharum* is absurd and besides homonymous if admissable with *Acer Saccharinum* Linn. *Saccharum* is the noun, *sugar* *Saccharinum* adjective thereof. A tree can not be the substance sugar! Marsh's name is ungrammatical and had better be dropped out of our nomenclature.

Saccharodendron hispidum (Schwerin) Nwd.

Acer hispidum Gr. von Schwerin, Nutt. Deutsch. Dendr. Gesell, p. 77, (1894).

Saccharodendron grandidentatum (Nutt.) Nwd.

Acer grandidentatum Nuttall in Torrey and Gray Fl. N. Am. I., p. 247, (1838).

Section or Subgenus *Sacchrosphendamnus*.

Flowers notably precocious, appearing long before the leaves. Stamens in the staminate flowers hypogynous. Plants andro-dioicous. Inflorescence lateral. (Habit different from the rest and perhaps a good genus, **Sacchrosphendamnus.**)

Saccharodendron saccharinum (Linn.) Nwd.

Acer saccharinum Linn. Sp. Pl. p. 1055, (1753).

[**Sachrosphendamnus saccharinum** (Linn.).]

The silver maple, *Saccharodendron saccharinum* (Linn.) Nwd. (*Acer saccharinum* Linn.) by habit and in very important other characters seems different enough to form a good subgenus or genus and in many cases differences such as here found would seem sufficient for generic distinction. The plants here included in *Saccharodendron*, however, will be seen to be very conspicuously and sufficiently different from the other maples to merit segregation. The calyx segments are not only united but the lobes are in all cases shorter than the tube in contradistinction to the almost distinct if not entirely distinct sepals of *Acer*. Petals are totally absent. The stamens are situated on the interior margin of the disk. The plants are andro-monoicous (and andro-diocous in *S. saccharinum*.) These characters alone would seem to indicate that the genus segregated herewith deserves as much if not more right to be accepted than *Rulac*. One would suppose that the latter should be reduced if *Saccharodendron* seems inadmissable. This latter differs by as great distinctions from the other maples as well as from *Rulac* and stands out markedly besides by it syn-sepalous calyx. Perhaps for consistency's sake still other segregation would be desirable but such notable characters as have been discussed can scarcely be overlooked for generic standing of any plants when these marks are constant.

Circaea in a Separate Family.

Apart from the fact that the habit of *Circaea* is different from

that of nearly all if not all of the *Onagraceae*, it has beside this its flowers in 2's, the upper part of the ovary or the stiped hypanthium is deciduous in fruit, while the rest of the Evening Primrose family have their flowers in 4's. *Ciraea* would more logically be a member and type of a separate family called by Dulac *Geminaceae*.[1] *Circaeaceae* might perhaps have been a more appropriate name, but Dulac did not believe that any genus or family should be named after individuals. He therefore suppressed such names as *Circaea*, *Gentiana*, *Hutchinsia*, etc., though to be consistent he must have overlooked *Heracleum* and *Hypericum*, or made effort to explain them by different derivation. Type genus of family is, *Circaea* Linn., Gen. Pl. p. 24, (1754).

Perhaps we may take occasion to describe here the following.

Circaea alpina var. **aleutica** nov. var.

Planta cum caulibus, ramis, et petiolis crassis et praecipue nodis caulium et romorum intumescentibus, bracteis minutis aliquibus in inflorescentia sicut in *C. intermedia;* stigmate florum 2-divisa, stylo tenui.

Plant study with thick fleshy succulent stems, branches and petioles, and swollen nodes, also minute bracts present in the inflorescence. Stigma or style deeply 2-lobed.

Type No. 256514 of the U. S. National Museum, M. W. Gorman's No. 119 collected at Spacious Bay, Alaska, July 16, 1895.

Fraxinus Linn.

The genus *Fraxinus* of Linnaeus is left at the present time after not a few attempts at segregation on the part of older phytographers almost in the same condition by our manual makers as is the genus *Acer*. As usually recognized in our floras and manual of to-day the socalled "genus" *Fraxinus* contains plants with petals and sepals, others with sepals only, others again that are perfectly achlamydeous. Some of the petaliferous ashes are quite choripetalous, others markedly sympetalous. This means that were one to arrange a key of a flora that would work satisfactorily one would have to make provision that the members of this genus could by amateur botanists (for which the manuals are principally intended) be determined with advantage if at all, only after searching among the apetalous, choripetalous, and sympetalous divisions of the dicotyledoneae. What is to be thought

1 Dulac, J. Flore Dept. Hautes Pyr. p. 328, (1867).

of a "genus" which has species with constant characters to be looked for in these three major categories of distinctions? And yet modern botanists, persist and have persisted and perhaps may for a long time to come continue to persist without apparently the slightest misgivings, to consider plants of such varied, important and withal constant characters to constitute logically a genus!

The family *Oleaceae* is scarcely less of an anomaly than, *Fraxinus* as a "genus." It contains plants with flowers complete to various forms of declinism, fruits, capsule, berry, drupe or samara! Now, the American plants of this family having drupes or berries, have long been recognized and separated, among other characters principally by the presence or absence of petals or the union thereof in the genera *Forrestiera* (apetalous) *Chionanthus* (Choripetalous), *Ligustrum* (sympetalous). Why should it then be considered illogical or bold to suggest the segregation of the aggregate group, *Fraxinus* Linn. into segregates on the same principles of classification (and that in the same family at that) is beyond our comprehension. Granted that the characters hold constant it is difficult to comprehend why the fleshy fruited members of the same family are separable when the dry fruited (samara) members are not. The genus *Fraxinus* Linn. was in fact not nearly as anomalous and illogical as the modern one because he had only three species in it, but since his time botanists have put into it many different types, and mostly for no other reason than that the newly discovered plants had winged fruits, like the Linnaean species. The attempts at segregation on the part of earlier botnaists not a few, attracted no serious attention on the part of modern bookmakers.

The following segregations, mostly made at one time or another by older botanists and even pre-Linnaean, may here be suggested. The type species of the Linnaean aggregate is *Fraxinus excelsior* Linn. This plant is polygamo-dioicous and has achlamydeous flowers. As these notes are suggested principally in the interest of the Eastern American plants not much attention will be paid to others and foreign plants usually crowded into the Linnaean genus *Fraxinus*.

FRAXINUS (Vergil) Linn. Sp. Pl. p. 1057, (1753), Gen. Pl. p. 477, (1754) in part.

Fraxinoides Med. Staats. Vorles. Churpf. Phys. Oek. Ges. I., p. 198, (1791). Phil. Bot. II., p. 30, (1791).

Fraxinus nigra Marsh, Arb. Am. p. 51, (1785).
Fraxinoides nigra Medic. l. c.

This species is the only one like the European achlamydeous *F. excelsior* Linn. and accordingly the only real *Fraxinus* in our region.

CALYCOMELIA Kostelm. Algem. Med. Fl. III., p. 1003, (1834).
Leptalix Rafinesque New. Fl. Am. III., p. 93, (1836). *Fraxinus* Linn. l. c. segregate.

Corolla none; calyx present at least in the fertile flowers and persistent. Lateral leaflets petioled. Type *F. caroliniana* Nutt. or *F. americana* Linn.

Calycomelia americana (Linn.) Kostel. l. c.
Fraxinus americana Linn. l. c.

Calycomelia biltmoreana (Beadle).
Fraxinus biltmoreana Beadle, Bot. Gaz. XXV., p. 358, (1898).

Calycomelia pennsylvanica (Marsh.)
Fraxinus pennsylvanica Marsh, Arb. Am. p. 51, (1785).
Fraxinus pubescens Lam. Encycl. II., p. 548, (1786).
Leptalix pubescens Raf. l. c.
Fraxinus lanceolata Borck., Handb. Forst. Bot. I., p. 826, (1800).
Fraxinus viridis Michx. f. Hist. Arb. Am. III., p. 115, p.l 10, (1813).

Calycomelia caroliniana (Nutt.) Kostel. Ind. Hort. Prag. p. 26.
Fraxinus caroliniana Miller. Dict. Ed. 8, No. 6, (1768).
Fraxinus platycarpa Michx. Fl. Bor. Am. II., p. 256, (1803).
Leptalix platycarpa Raf. Alsog. Am. p. 35, (1838).

Rafinesque also referred this plant to his genus *Samarpses* New. Fl. Am. III., p. 93, as *S. triptera*, because of its peculiar fruit, but later put it back into *Leptalix*.

Calycomelia quandrangulata (Michx.) wostel. l. c.
Fraxinus quadrangulata Michx. Fl. Bor. Am. II. p. 253, (1903).

Calycomelia profunda (Bush).
Fraxinus profunda Bush, Britton, Man. p. 725, (1901).

Calycomelia pistaciaefolia (Torr.).

Fraxinus pistaciaefolia Torr., Pacif. R. R. Rep. IV., p. 128.

ORNUS (Pliny, 16:18) Ludwig-Boehmer Def. Gen. Pl. p. 476, (1760).

Mannaphorus Raf. Am. Monthly Mag. p. 175, (1818).[1]

Ornanthes Raf. New. Fl. Am. III., p. 93, (1836).

Plants with calyx and 4-parted corolla, of almost separate petals. Style none or short.

Ornus europaea Person, Syn. I., p. 9, (1805).

Ornanthes florida Raf. l. c.

Fraxinus Ornus Linn. Sp. Pl. p. 1057, (1753).

Ornus cuspidata (Torr.)

Fraxinus cuspidata Torrey. Bot. Mex. Bound. p. 166, (1858).

Ornus Greggii (A. Gray).

Fraxinus Greggii A. Gray, Proc. Am. Acad. XII., p. 63, (1877).

There are many species in Eastern Asia. A considerable number of these are from China and not very long known. *Fraxinus sieboldiana* Blume,[2] (*Ornus sieboldiana*) of Japan belongs to this genus as also *Fraxinus* or *Ornus longicuspis* (Sieb. & Zucc.) and *Fraxinus* or *Ornus retusa* (Champ), *T.* or *Ornus bracteata* (Hems.) from China has a very short lobed in completely 4-divided corolla campanulate or salver-shaped and should perhaps better be a seprate subgenus at least.

Rafinesque referred *Fraxinus anomala* Torr. to his genus *Aplilia*.[3] The plant has simple leaves. Specimens with more or less divided leaves of this or an allied species show this character as of not sufficient constancy to deserve consideration even if this character were otherwise of sufficient importance, which may be questioned.

Petlomelia nov. gen.

Arbor parva cum floribus depetalis quorum stylus plus minusve evolutus est: foliis 3–9 foliolatis, plerumque petiolulatis plus minusve serratis, coriaceis, petalis binis breviter unguiculatis, ovato-oblongis, vel obovato-oblongis antheras lineares alquantibus; fructu spatulato, retuso; calyce truncato vel dentato.

1 This reference could not be found in the place, cited in our copy. The obvious meaning of the word is the only reason given for this quotation.

2 Blume, Mus. Hort. Lugd. Bat. I., p. 311.

3 l. c.

Small tree with two-petaled flowers: style short but present. leaves 3-9 foliolate usually petiolulate, somewhat serrate, coriaceous. Petals short-clawed, obovate-oblong to ovate oblong as long as the linear anthers. Fruit spatulate retuse to linear oblong. Calyx truncate or somewhat toothed.

Type *Fraxinus dipetala* Hook. and Arn.

Petlomelia dipetala (Hook. and Arn.) Nwd.

Fraxinus dipetala Hook and Arn. Bot. Beech. Voy. p. 362, t. 87, (1841).

Ornus dipetala Nutt. Sylv. III., p. 66, t. 101.

This genus differs from *Ornus* in the number of petals which are two and so far distinct as to be in fact clawed. Style present, whereas it is absent or almost so in *Ornus*.

Lunellia, a New Genus.

When first discovered the plant now commonly called *Syntheris* or *Wulfenia rubra* was very mistakenly referred by Hooker[4] to the genus *Gymnandra* to which the plant bears no near relationship even. The author himself, however, later relegated it to *Syntheris*.[5] This genus at first suppressed by Dr. Britton[6] as not sufficiently distinct from *Wulfenia* as Dr. Greene showed in case of our American plants.[7] The validity of the standing of *Syntheris* was discussed thoroughly by him, with the conclusion that the genus can be scarcely admitted apart from *Wulfenia*. Later another segregation was proposed by Dr. Rydberg,[8] with *Wulfenia* or *Syntheris alpina* A. Gray as type, under the name *Besseya*.

All these attempts at segregation are based on characters of calyx, stamens or habit, and *Syntheris rubra* (Hook.) Benth., has successively been relegated to all of these. The presence or absence of corolla would seem certainly to be a character deserving generic consideration. Everyone seems, however, to have either overlooked, or disregarded this important character even though known as constant. Though in *Wulfenia* the stamens are epipetalous the fact of their being situated on the outer side of the hypogynous disk in the plant called *W. rubra* indicates more than a

4 Dougl. in Hooker, Fl. Bor. Am. II., p. 103, (1840).
5 Britton, N. L. Ill. Fl. N. Am. III., p. 166, (1898).
6 Britton, N. L. Ill. Fl. N. Am., III., p. 199, (1913).
7 Greene, E. L., Erythea, I. p. 80, (1894).
8 Rydberg, P. A, Bull. Torr. Bot. Club. p. 279, (1903).

simple change involved in the disappearance or atrophy of corolla. Even if the latter is represented by the disk the stamen insertions were besides supposed to be carried downward to this disk or on this disk or they would have necessarily disappeared with the corolla itself in the process of variation phylogenetically.

In addition to this important character of *W. rubra* (Hook.) Greene, we find the calyx rather irregular as distinguished from the plants it has been associated with. It is, therefore proposed to make it the type of a new genus named in honor of Dr. J. Lunell of Leeds, North Dakota, a most zealous and able botanist of that region, to whom as collector and phytographer American botany as well as local is greatly indebted, and whose contributions of the botanical information on the plants of that region have frequently appeared in this journal.

Lunellia nov. gen.

Plantae erectae habitu *Wulfeniae Bullii*, rhizomate crasso. foliis basalibus petiolatis in caule quidem sessilibus alternis; floribus in spicis densis omnino apetalis; calice in segmenta inaequalia diviso; staminibus duobus cum stylo exsertis, aequilongis in exteriore margine disci hypogyno insertis; capsula emarginata, compressa, obcordata, duas habente cellulas.

Erect plants with the habit of *Wulfenia Bullii* with thick rhizomes, petioled basal leaves and sessile alternate cauline ones, flowers in dense spikes without corolla. Calyx deeply divided into unequal segments. Stamens two exserted with the style, and inserted on the outer margin of the hypogynous disk: filaments slender. Capsule emarginate not much compressed, two-celled. Type the following:

Lunellia rubra (Hook.) Nwd.
Gymnandra rubra Hook. Fl. Bor. Am. II., p.. p. 103, (1840).
Syntheris rubra (Hook.) Benth. in DC. Prod. X., p. 455, (1846.)
Wulfenia rubra (Hook.) Greene Erythea, l. c.
Besseya rubra (Hook.) Rydberg l. c.

Beside this the new genus contains also the plants called *Syntheris wyomingensis* A. Nelson and *Syntheris gymnocarpa* Heller both without corolla, plants of the western United States.

Enetophyton nov. gen.

Planta parva scaposa erecta simplex, (nunquam ramosa)

floribus albescentibus vel purpurascentibus cleistogamis. 1–4, pedicellatis, inconspicuis et perparvis; calice 2-partito ejus labio inferiore minute 3-lobato et 5-nervato, superiore quidem 7-nervato: corolla breviter et obtuse saccata et bilobata: capsula globosa, multa perparva semina continente.

Plant small, scapose, erect, simple, leafless or with a few scales, with 1-4 pedicelled inconspicuous small flowers. Calyx two parted the lower lobe minutely 3-lobed and five nerved, the upper 7-nerved. Corolla two-lipped, bluntly saccate: capsule globose with many minute seeds.

This plant probably monotypic is distinct from *Utricularia* Linn. and the other genera recently segregated from this by its cleistogamous flowers. There seems some doubt that these minute flowers are really cleistogamous,but even then the characteristically peculiar shape of the flowers especially the corolla is sufficiently distinctive. If these flowers are then really chasmogamous and not cleistogamous they do not in any way resemble any of the flowers of the other *Utricularíaceae.*

The corolla is a subglobose sac-like structure with a slit at one end and a blunt continuation of the sac at the insertion below. The lobes are neither recurved or even reflexed or spreading. The flowers are subcorymbose. The peculiar color of the flowers too seems to bespeak no close resemblance to *Setiscapella subulata* (Linn.) Barnhart[1] (*Utricularia subulata* Linn.) of which it was first made a mere variety resembling it in habit.

Type species *Setiscapella* or *Utricularia cleistogama* (A. Gray).

Enetophyton cleistogamum (A. Gray) Nwd.

Setiscapella cleistogama (A. Gray) Barnhart. p. 231 l. c.

Utricularia cleistogama Britton, Trans. N. Y. Acad. Sci. IX., p. 12, (1889).

Utricularia subulata var. *cleistogama* A. Gray. Syn. Fl. 2, I., p. 317, (1878).

APHYLLON Mitchell.

The name *Aphyllon* Mitchell, (1769)[1] antedated Rafinesque's *Thalesia*[2] and should be restored. The name was accepted by

1 Barnhart in Britton's Ill. Fl. N. Am. 2nd Ed. III. pp. 230–231, (1913).

1 Mitchell, J. Diss. Brevis de Prin. Bot. and Zool. cum Append. Aliquot Gen. Pl. etc. Norimbergae (1769).

2 Rafinesque, C. S., Am. Month. Mag. 2, p. 269, (1818).

Dr. Gray[3] but found later to be preceded by *Thalesia*. Mitchell's reprint was, however, overlooked as it was in the case of the genera *Pentstemon* and *Viticella* elsewhere noted.[4]

PHENIANTHUS Raf.

The plant called by Linnaeus *Lonicera sempervirens* by its almost regular corolla of four small subequal lobes and very long tube would seem to be at least as much entitled to generic standing as *Nintooa* Sweet. The latter has not nearly as characteristically different floral characters as the other. The flowers of Rafinesque's segregate plant *Phenianthus* for *L. sempervirens* are even more strikingly different from typical *Lonicera* than are those of the recognized genus *Xylosteum* Adams. The genus was proposed by Rafinesque and is probably a good one.

PHENIANTHUS Raf., Ann. Gen. Sc. Phys. VI. p. 83, (1820).
Phenianthus sempervirens (Linn.) Raf. l. c. (Type.)
Lonicera sempervirens Linn. Sp. Pl. p. 173, (1753).

Phenianthus arizonicus (Rehder).
Lonicera arizonica Rehder. Spring. Trees and Shrubs 1, p. 45, (1902).

TRIODANIS Raf.

The American plants hitherto referred to *Specularia* (Heist.) Fabr. or *Legouzia* Durand are in fact rather different from the common members of the old world genus with which they have almost invariably been associated. Rafinesque well acquainted with both the European *Specularia Speculum Veneris* (or *Specularia Speculum* wrongly called) and also knowing well our American plants was quick to recognize the differences between the two. He therefore made our plant *Specularia perfoliata* (Linn.) DC. the type of a new genus *Triodanis*.

The calyx according to his diagnosis is notably irregular in *Triodanis*. Three of the sepal lobes are narrower than the others and turned away from them giving the whole a bilabiate appearance. The corolla is deeply and the flowers are axillary on stems or the few branches, whereas in the European plant

3 Gray, A., Syn. Fl. 2, pt. 1, p. 312, (1878).
4 Am. Mid. Nat. III., p. 155, (1913).
5 See Small, J. K. Fl. S. E. U. S. p. 1125, (1903 also 1913).

they are almost flat-topped cymosely terminal. Moreover, our American plants have two kinds of flowers; the earliest and lowest are almost devoid of corolla, cleistogamous and with smaller and fewer calyx teeth. The capsule in the type is short cylindric or obconic.

TRIODANIS Raf. l. c.

Specularia (Heister) Fabr.[6] or *Legouzia* Durand[7] segregate.

Triodanis perfoliata (Linn.) Nwd.

Triodanis rupestris (Linn.) Raf. l. c.

Triodallus rupestris (Linn.) DC. Prod. VII., p. 491, (1839).

Specularia perfoliata (Linn.) A. DC. Mon. Campan. p. 351, (1830).

Legouzia perfoliata (Linn.) Britton. Mem. Torr. Bot. Cl. V., p. 309, (1894).

Campanula perfoliata Linn. Sp. Pl. p. 169, (1753).

Triodanis biflora (R. and P.) Nwd.

Campanula biflora (R. and P.) Fl. Per. 2, p. 55, pl. 200, (1799).

Specularia biflora (R. and P.) F. and M. Ind., Sem. Hort. Petrop. I., p. 17, (1835).

Triodanis leptocarpa (Nutt.) Nwd.

Specularia leptocarpa (Nutt.) A. Gray. Proc. Am. Acad. II., p. 82, (1876).

MESADENIA Raf. A SYNONYM.

The name *Mesadenia*[1] as applied to the composite plants segregates of *Cacalia* Linn. is inapplicable because the name was used by Rafinesque several years earlier in attempt to displace Walter's name *Frasera* of the *Gentianaceae*.[2] Concerning the status of the well recognized genus of *Compositae*, Dr. Greene has not only discussed fully its merits, but also thrown light on the somewhat confused condition of the nomenclature.[3] De Candolle's first attempt at segregation was done as a section or subgenus under

6 (Heister, L.) Falricius, P. K. Enum. Pl. Hort. H.lmst. p. 225, (1763).

7 Durande, J. Fr., Fl. Bourg. 2, p. 26, (1782).

1 Rafinesque, C. S., Loudon's Gard. Mag. 8, p. 247, (1832), also Rafinesque ,C. S., New Fl. IV., p. 78, (1836).

2 Rafinesque, C. S., Med. Fl. I., p. 198, (1828).

3 Greene, E. L., Pittonia, III., p. 180–183, (1897).

Cacalia which he called **Conophora.**[4] It would seem appropriate to perpetuate this as a generic name.[5]

Conophora (DC.) Nwd.
Cacalia Linn. Subgenus or Section *Conophora* DC. (1837).
Mesadenia Raf. Loud. Gard. Mag. 8, p. 247, (1832), and *Mesadenia* Raf. New. Fl. IV., p. 78, (1836) not *Mesadenia* Raf. Med. Fl. I., p. 198, (1828).
?[*Arnoglossum* Raf. Fl. Lud. p. 64, (1817)]? nomen subnudum, not *Arnoglossum* of the Ancients.)

Conophora atriplicifolia (Linn.) Nwd.
Mesadenia atriplicifolia (Linn.) Raf. l. c. p. 79.
Cacalia atriplicifolia Linn. Sp. Pl. p. 835, (1753).

Conophora reniformis (Muhl.) Nwd.
Mesadenia reniformis (Muhl.) Raf. l. c. p. 79
Cacalia reniformis Muhl. Willd. Sp. Pl. 3, 1735, (1809).

Conophora tuberosa (Nutt.) Nwd.
Mesadenia tuberosa (Nutt.) Britton. Ill. Fl. 3, p. 474, (1898).
Mesadenia plantaginea Raf. l. c. p. 79.
Cacalia tuberosa (Nutt.) Gen. 2, p. 138, (1818).
?[*Arnoglossum plantagineum* Raf. Fl. Lud. p. 65, (1817)]?

Conophora floridana (A. Gray) Nwd.
Cacalia floridana A. Gray, Proc. Am. Acad. XIX., p. 52, (1883).

Conophora ovata (Walt.) Nwd.
Mesadenia ovata (Walt.) Raf. o. c.
Cacalia ovata Walt., Carol. p. 196, (1785).

Conophora diversifolia (T. and G.) Nwd.
Mesadenia diversifolia (T. and G.) Greene l. c.

Conophora similis (Small) Nwd.
Mesadenia similis Small, Fl. S. E. U. S. p. 1301, (1903).

Conophora maxima (Harper) Nwd.
Mesadenia maxima Harper in Small, Fl. S. E. U. S., p. 1301, (1903)., etc., etc.

4 De Candolle, A. P., Prod. VI., p. 329, (1837).

5 It is possible that the name of the cryptogamic plant *Coniophora* DC. and Pers. may render *Conophora* a synonym. If so **Adenimesa** may be suggested for *Mesadenia* Raf. (1832), with the same type *A. atriplicifolia*—*Mesadenia atriplicifolia* (Linn.) Raf. New Fl. 4, p. 79, (1836).

CYPHORIMA Raf.[1]

This genus by important characters not ordinarily sufficiently emphasized deserves recognition even if *Batschia* be reduced to *Lithospermum* Linn. De Candolle[2] made *Batschia linearifolia* or *Lithospermum linearifolium* Goldie typical of his genus *Pentalophus*.[3] Not well acquainted with the synonymy of the plant he simultaneously had it under *Lithospermum* as *L. angustifolium*[4] Michx. These are now shown to be identical. There is no doubt that De Candolle described this plant as type of *Pentalophus* apparent from his description as well as quotation of synonymy.

Apart from the very notable character of having cleistogamous, flowers, a character rather unusual in the *Asperifoliae* the plant is well distinguished in other ways even from *Batschia* itself. The corolla tube is very long, three to five times that of the calix, and the lobes erose-denticulate, notably salver shaped, or trumpet shaped. The nutlets are keeled and the corolla appendgaes large and arching, the flowers becoming reflexed on their pedicels when the fruit forms.

Cyphorima Rafinesque, l. c.
Lithospermum Linn. or *Batschia* Gmelin in part.

Cyphorima angustifolia (Michx.) Nov. comb.
Lithospermum linearifolium Goldie. Edinb. Phil. Jr. p. 322, (1822).
Lithospermum angustifolium Michx. Fl. Bor. Am. 1, p. 130, (1803). Not Forskal.
Pentalophus longiflorus D. C. l. c.
Pentalophus angustifolius (Michx.)
Batschia longiflora Nuttall. Gen. 1, p. 114, (1818).

WHY MATTEUCIA?

There can be little doubt to those carefully studying the original works that the name *Struthiopteris* was first used for the Ostrich fern, (*Matteucia Struthiopteris* (Linn.) Todaro), by the discoverer of this plant. Its first publication was made by Valerius

1 Rafinesque, C. S., Am. Monthly Mag. p. 191, 357, (1819) Cat. 13, (1824).
2 De Candolle, A. Prod. X., p. 86, (1846).
3 l. c. p. 79.
4 l. c. 78.

Cordus.[1] Linnaeus reduced the genus to his *Osmunda*,[2] and unfortunately the first attempt at restoration of the name since 1753 was made to apply mistakenly to *Lomaria Spicant* (Linn.) Desv.[3] Haller,[4] Scopoli,[5] (Ludwig, Boehmer,)[6] Weis,[7] Trevisan,[8] in fact all the followers of Haller thought apparently that the plant Valerius Cordus had at hand was *Lomaria Spicant* (Linn.) Desv., and not more than a year ago a goodly number of species new and old were put under *Struthiopteris* though under former conditions referable to *Lomaria*.[9] Now, because of the "rules" that tolerate an error or a mistake, when made since 1753, it would be worse than useless to insist that the name *Struthiopteris*, be applied to what is now called *Matteucia*, on the ground that the former was the first pre-Linnaean name of the latter, with Haller etc., to the contrary notwithstanding. Such an assumption of position would appear ridiculous to code followers, who may be expected to be logical or not as suits their whims.

On the authority of Trevisan was it asserted even that the original *Struthiopteris* Cordus is the Linnaean *Osmunda Spicant*.[10] Trevisan like Haller and others must have put too much stock in the figure accompanying Cordus' description, to the detriment of careful study of his description, and all unmindful of the fact that the figures and illustrations of Cordus' History were put in by Conrad Gesner. The latter was not a very good botanist, but rather a zoologist, and in editing the other's work long after Cordus' death, added the figures, which in not a few cases were lamentably mixed up, and often so hopelessly transposed that even a botanical tyro in looking through the work must smile at mistakes, realizing immediately after reading the remarkable good descriptions of Cordus himself that this author could not have been responsible for such obvious blunders.

In confirmation of the fact that Cordus described the Ostrich

1 Cordus, V. Hist. Pl. 2, p. 170, (1561) edited by C. Gesner.

2 Linnaeus, C., Sp. Pl. p. 1066, (1753).

3 Desvaux, A. N. Ges. Nat. Fr. Berl. Mag. 5, p. 325, (1811).

4 Haller, A. Enum Stirp. Helv. p. 132, (1742) also 2nd Ed. 3, p. 6, (1768).

5 Scopoli, J. A., Fl. Car. p. 168, (1760).

6 Ludwig Boehmer, Def. Gen. Pl. p. 479, (1760) as a synonym. also Gleditsch Fl. Lips. p. 296.

7 Weiss, F. W., Pl. Crypt. Fl. Gott. p. 286,. (1770).

8 Trevisan, V. C., Attis Ist. Ven. III., 14, pp. 553–558, (1869).

9 Broadhurst, J. Bull. Torr. Bot. Cl., 39, p. 257, (1912).

10 Thalius, J. Sylva Harcynia, p. 119, (1588).

fern we have also Thalius' remarkable diagnosis of the plant under the good binomial caption *Struthiopteris Cordi*. All this comment from our part is, of course, more or less useless perhaps, against a system that tolerates, any blunder or name provided it enjoy a certain priority in being perpetrated since 1753. It may serve, however, at least this much in as far as it calls attention to the mistake and its explanation.

The question of the application of the name *Struthiopteris* apart, we see no reason why *Matteucia* Todaro, should be used for the Ostrich fern, when another name **Pteretis** Rafinesque, quite valid as far as we know, antedates it by nearly fifty years. For reasons about to be referred to, it seems to us a very difficult matter to understand by what principles a name is often applied by our modern nomenclators. The followers of the Vienna Code will probably pay little attention to Rafinesque's publication of *Pteretis*,[1] because under a system without even the semblance of fast rules, it will be easy to find "clauses" whereby it can be put back into oblivion. The followers of the American or New York Codes have disregarded *Thelypteris* Schmidel (1760), an older name than *Dryopteris* Adanson (1763),[2] also rejected *Pentaphylloides* Duhamel (1755), for the later *Dasiphora* Raf. (1838). The logic of such procedure is difficult to see; concerning the reason or motive we will not venture a statement though perhaps we could. Ignorance of the fact of the publication of *Thelypteris* or *Pentaphylloides* need scarcely be considered. If *Thelypteris* is to be rejected in favor of a later *Dryopteris* because there was a different application of the name in its first pre-Linnaean publication, the name, *Struthiopteris* as used for *Osmunda Spicant* Linn. stands a parallel case. Then why is the latter acceptable and the former not? No reason being given for the rejection of *Thelypteris* and *Pentaphylloides* it may be supposed that perhaps there is none or there is no good one. Any way the logic of it is quite incomprehensible to us, unless there be a motive for ignoring it without any need or semblance of reason.

Now that *Pteretis* is found to antedate *Matteucia* we wonder whether it will be found worthy or acceptable in spite of its priority. We have seen so many cases lately of rejected names boasting priority since 1753, that we feel that all the much vaunted

1 Rafinesque, C. S., Am. Monthly Mag. II., p. 268, (1818).

2 Britton, N. L. Ill. Fl. N. Am. I., p. 17, II., p. 262, (1913).

statements of fealty to the fetich of priority are meaningless noise or waste of good type space.

Realizing then that it is scarcely worth while to call attention even to the fact of the priority of *Pteretis* Raf., because of the very peculiar exhibitions of logic on the part of the manual writers, we still venture to propose the accompanying synonymy of *Struthiopteris* Cordus, because, whether acceptable or not before the high court of the codes, we will in spite of this feel that we are a little nearer to the truth, as dictated by the logical methods of either limited or absolute historical priority. Which horn of the dilemma will be preferable to the manual makers, namely, the acceptance of *Thelypteris* Schmidel (176c)[1] or *Dryopteris* Adanson (1763) and the analogons *Struthiopteris* Scopoli or *Struthiopteris* Willd., or on the other hand the acceptance of *Pteretis* Raf. for *Matteucia* Todaro (1866), we need not hazard a guess. In order to save the mark we may venture that another, perhaps a safer way were the suggestion of the complete suppression of *Pteretis* or *Matteucia* in any future editions, and its consequent reduction to synonymy under *Onoclea* Linn. In view of the fact of the rather widespread acceptance in the past of the validity of this group called *Matteucia*, its suppression is not really necessary, as it is a good genus, but this procedure might perhaps more easily be effected without as much need of explanation or evident ignoring of the fact of any one calling attention to the priority of *Pteretis* Raf. This procedure would render explanations needless, though of course in ignoring the truth it is scarcely necessary to hazard even an explanation for any mode of action. The following synonymy may be suggested:

Pteretis Raf. Am. Month. Mag., II., p. 268, (1818).

Matteucia Todaro, Geor. Sci. Nat. Palermo, I., p. 235, (1866).

Strithiopteris Willd. Enum. p. 1071, (1809) also Thalius, J. Sylva Hercyna p. 119, (1588), Cordus, V. Hist. Pl. 2, p. 170, (1561) [Opus Posth.] not *Struthiopteris* Haller, Scopoli, Weiss, Trevisan l. c. etc. = *Lomaria Spicant* (Linn.) Desvaux.

Pteretis Struthiopteris (Linn.)

Struthiopteris Cordi Thalius l. c.

Matteucia Struthiopteris Linn. Sp. Pl. p. 1066, (1753).

Onoclea Struthiopteris Hoffm. Deutsch. Fl. 2, p. 11, (1795).

1 *Thelypteris* as used by Schmidel was accepted also by Haller. See his Hist. Stirp. Indig. Helv. III., p. 7, (1768).